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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	09/519,719
	Filing Date	March 7, 2000
	First Named Inventor	Noorbakhsh, et al.
	Art Unit	1763
	Examiner Name	Luz L. Alejandro Mulero
Total Number of Pages in This Submission	Attorney Docket Number	4150

ENCLOSURES (check all that apply)

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Firm	Moser, Patterson & Sheridan, LLP		
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IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

PATENT APPLICATION

Applicant: **Noorbakhsh et al.**

Case: **4150**

Serial No.: **09/519,719**

Filed: **March 7, 2000**

Examiner: **Luz L. Alejandro Mulero**

Group Art Unit: **1763**

Confirmation No.: **8956**

Title: **TEMPERATURE CONTROLLED SEMICONDUCTOR PROCESSING
CHAMBER LINER**

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1-3-05
Date

Allyson M. DeVesty
Signature

REPLY BRIEF ON APPEAL

Sir:

The following Reply Brief on Appeal in the above-identified application is submitted in response to the Examiner's Answer dated November 1, 2004. As January 1 and 2, 2005 respectively fell on a Saturday and a Sunday, the Appellants believe this Reply Brief is timely filed within the one-month period for reply and that no fee is due in connection with this response. However, the Commissioner is hereby authorized to charge counsel's Deposit Account No. 20-0782 for any fees, including extension of time fees, due in connection with the filing of this Reply Brief.

REMARKS

The following remarks are made in response to the Examiner's Answer dated November 1, 2004.

SUMMARY OF INVENTION

In section (5) of the Examiner's Answer, entitled Summary of Invention, the Examiner incorrectly summarizes the embodiment of the invention recited in claim 11. Specifically, the embodiment recited in claim 11 comprises a chamber body having a wall, a bottom and a lid assembly defining a chamber volume; a substrate support disposed within the chamber volume; and, a chamber liner disposed in the chamber volume and having a base substantially covering the bottom of the chamber body, the base having a substantially annular passage formed therein and fluidly isolated from the chamber volume, the base having an inlet and outlet adapted to circulate a fluid through the passage. The Examiner's answer omitted the portion that is underlined above.

ARGUMENT

The Appellants maintain their positions advanced in the Corrected Appeal Brief filed September 22, 2004. In addition, the following remarks are made in response to section (11) of the Examiner's Answer, entitled Response to Argument, and follow the order of comments made by the Examiner.

A. Claims 53 and 58

The Examiner's conclusions regarding the patentability of claims 53 and 58 under 35 U.S.C. §112 are incorrect. In particular, the Appellants maintain that the Specification provides adequate support for all of the limitations recited in claim 53, and in claim 58 which depends therefrom.

The Examiner asserts that there is no support in the specification for the limitation "wherein a passage is disposed between the liner and the chamber wall, the passage being fluidly isolated from the chamber volume and having an inlet and an outlet adapted to circulate a heat transfer medium therethrough," as

recited in independent claim 53. However, this limitation is sufficiently described in the specification and drawings such that one skilled in the art could reasonably conclude that the inventor had possession of the claimed invention.

“To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention.” *MPEP* §2163 I; *see also, e.g., Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1319, 66 USPQ2d 1429, 1438 (Fed. Cir. 2003); *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563, 19 USPQ2d 1111, 1116. “While there is no *in haec verba* requirement, [amended] claim limitations must be supported in the specification through express, implicit, or inherent disclosure.” *MPEP* §2163 I B.

Specifically, the heat transfer passages described throughout the specification and depicted in the drawings are formed at least partially in a liner that abuts a chamber wall and are fluidly isolated from the chamber volume. The heat transfer passages have an inlet and an outlet adapted to circulate a heat transfer medium therethrough. (See, e.g., Summary of the Invention, p. 4, ll. 8-10; Detailed Description of the Invention, p. 6, ll. 22-26; Figure 1.) As such, those skilled in the art will recognize that the passage is disposed between the chamber wall and the liner, as claimed in claim 53.

Thus, claim 53, and claim 58 that depends therefrom, are supported by the Specification. Therefore, claims 53 and 58 satisfy the requirements of 35 U.S.C. §112. Accordingly, the rejection should be withdrawn and the claims allowed.

B. 35 U.S.C. §103 – Pu in view of Masuda

The Examiner relies upon the combination of *Pu* and *Masuda* to reject many of the pending claims. However, the Examiner’s conclusions regarding the patentability of claims 11-17, 20, 38, 40, 47-48, 51, 53 and 55 over *Pu* in view of *Masuda* are incorrect. In particular, there is no motivation to combine *Pu* and *Masuda* in a manner that teaches or suggests all of the limitations recited in claims 11-17, 20, 38, 40, 47-48, 51, 53 and 55.

The Examiner points to *Masuda*, col. 5, ll. 24-31, as motivation to combine the references. However, the cited portion of *Masuda* fails to provide any suggestion or motivation to modify the liner of *Pu* with a fluid passage as taught by *Masuda*. The liner of *Pu* and the jacket of *Masuda* are made of different materials and are directed at solving different problems. Specifically, the liner of *Pu*, as described in detail by the incorporation of *Shan*, is a dielectric. (*Pu*, p. 5, ll. 6-8; *Shan*, p. 3, ll. 25-26.) The purpose of the liner of *Pu* and *Shan* is to “[adjust] the DC bias on one chamber electrode relative to another electrode by interposing a dielectric shield between one of the electrodes and the plasma.” (*Shan*, p. 2, ll. 40-41.) Hence, the liner of *Pu* and *Shan* is referred to as a dielectric anode shield. (*Shan*, p. 3, ll. 25-26.)

Masuda, on the other hand, teaches an apparatus directed at solving a different problem. The jacket of *Masuda* is a “thermally conductive nonmagnetic metallic material including no heavy metal, for example, such as aluminum” (*Masuda*, col.7, ll. 37-43). The purpose of the jacket of *Masuda* is to control the temperature of the chamber inner wall surface in contact with the plasma in order to form a solid protective polymer layer on the chamber wall. (*Masuda*, Abstract; col. 3, ll. 35-56.)

The teachings of the references must be considered in their entirety, *i.e.*, as a whole, including portions that would lead away from the claimed invention. *MPEP* §2141.02, (citing *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)); see also, *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983).

Thus, while the Examiner points to portions of *Masuda* touting the benefit of the temperature control jacket, the Examiner dismisses the entire purpose of the dielectric anode shield of *Pu* and *Shan*. *Shan* discusses the importance of keeping the dielectric anode shield cool and controlled to maintain low levels of particulate contamination in the chamber and specifically discloses cooling channels surrounding the chamber side wall for controlling the temperature of the sidewall, and thereby, the liner. (*Shan*, p. 9, ll. 28-46.) *Shan* specifically

addresses the difficulty of keeping the dielectric anode shield cool and addresses the issue via the cooling channels surrounding the chamber wall and establishing good thermal contact between the dielectric anode shield and the chamber wall. (*Id.*) As such, *Shan*, taken as a whole, teaches away from incorporating cooling channels within the dielectric anode shield.

Additionally, in asserting that the references are combinable, the Examiner points to the fact that *Pu* (via *Shan*) teaches that the thickness of the dielectric anode shield can be adjusted to attain a desired DC bias, but fails to consider the disclosure that the dielectric constant of the dielectric material also affects the DC bias. (See, e.g., *Shan*, p. 2, ll. 40-46.) As such, forming fluid passageways through the dielectric anode shield of *Pu* and *Shan* would create an uneven dielectric constant, and therefore, uneven DC bias patterns, around the chamber – thereby negatively affecting the e-field uniformity within the chamber. Thus, based upon the teachings of *Pu* and *Shan* taken as a whole, one skilled in the art would not replace the dielectric anode shield with a metallic material. Moreover, one would keep the dielectric anode shield, and thereby its effect on the DC bias, as uniform as possible, rather than forming a series of hollow sections running through the liner.

In addition, there must be a reasonable expectation of success found in the prior art. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).; *MPEP* §2143. The negative effects discussed above of replacing the dielectric anode shield with a metallic material or forming hollow portions in the dielectric anode shield of *Pu* and *Shan* weigh against a reasonable expectation of success in the combination of these references in the manner suggested by the Examiner.

Thus, claims 11-17, 20, 38, 40, 47-48, 51, 53 and 55 are patentable over *Pu* in view of *Masuda* and satisfy the requirements of 35 U.S.C. §103. Accordingly, the rejection should be withdrawn and the claims allowed.

C. Claims 11-17 and 20

Pu and *Masuda* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 11, from which claims 12-17 and 20 depend.

As discussed above, the Appellants maintain that *Pu* and *Masuda* are not combinable in a manner that yields the claimed invention. However, with respect to the Examiner's comments regarding the combination of *Pu* and *Masuda* teaching a chamber liner having a base that "substantially covers the bottom of the chamber body, the base having a substantially annular passage formed therein," the Appellants submit that *Masuda* teaches a water jacket disposed adjacent a sidewall of a process chamber, and not formed in a base of a chamber liner. Therefore, *Masuda* still fails to teach forming an annular passage in the base of the chamber liner, as recited in claim 11.

Thus, claim 11, and claims 12-17 and 20 that depend therefrom, are patentable over *Pu* in view of *Masuda* and satisfy the requirements of 35 U.S.C. §103. Accordingly, the rejection should be withdrawn and the claims allowed.

D. Claims 38 and 40

As discussed above, *Pu* and *Masuda* do not, individually or in combination, teach, show, or suggest all of the limitations of independent claim 38, from which claim 40 depends.

With respect to the Examiner's contention that *Pu* "clearly" teaches "a chamber liner having a bottom that is coupled between the outer cylindrical wall and the inner cylindrical wall," the Appellants point out that Figure 1 and the accompanying description of the outer liner 26 and the inner liner 27 clearly show the liners 26 and 27 as being separate components and do not show or describe any coupling of the two liners to each other. (*Pu*, p. 5, ll. 3-8; Figure 1.) Moreover, the incorporated detailed description from *Shan* further fails to teach that the two liners are coupled together. (*Shan*, p. 3, l. 20 – p. 4, l. 45; Figure 1.)

With respect to the Examiner's comments regarding reliance on features not recited in the rejected claims, the Appellants point out that the portion of the

Brief referred to by the Examiner does in fact cite the rejected claim limitations. Specifically, the Brief states that “the Applicants claim a chamber liner having a bottom that is ‘coupled between the outer cylindrical wall and the inner cylindrical wall’, *e.g.*, to form a single liner component, as recited in independent claim 38.” (*Appeal Brief*, p. 13, ll. 22-25.) The phrase “*e.g.*, to form a single liner component” is given merely as an example and is not relied upon by the Appellants to distinguish the claims from the prior art.

Thus, claim 38, and claim 40 that depends therefrom, are patentable over *Pu* in view of *Masuda* and satisfy the requirements of 35 U.S.C. §103. Accordingly, the rejection should be withdrawn and the claims allowed.

E. Claims 47-48 and 55

As discussed above, *Pu* and *Masuda* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 47, from which claims 48 and 55 depend.

With respect to the Examiner’s comments regarding reliance on features not claimed, the Appellants maintain that, as discussed above, there is no motivation to combine the teachings of *Pu* and *Masuda* in a manner that yields the invention as recited in claim 47. As such, Appellants do not rely on features not recited in the limitations of the claims to distinguish the claims from the prior art.

Thus, claim 47, and claims 48 and 55 that depend therefrom, are patentable over *Pu* in view of *Masuda* and satisfy the requirements of 35 U.S.C. §103. Accordingly, the rejection should be withdrawn and the claims allowed.

F. Claims 51 and 53

As discussed above, *Pu* and *Masuda* do not, individually or in combination, teach, show or suggest all of the limitations of independent claims 51 and 53. Specifically, there is no suggestion or motivation for combining *Pu* and *Masuda* in a manner that would yield a semiconductor processing chamber comprising a chamber liner disposed against a vertical portion of a substrate

support and having a passage at least partially formed therein, as recited in claim 51, or a chamber liner circumscribing the substrate support and adapted to be removably disposed in the chamber volume, the liner comprising an outer cylindrical wall configured to line the wall of the chamber, an inner cylindrical wall configured to line the substrate support, a bottom connecting the outer cylindrical wall and the inner cylindrical wall, and a passage disposed between the liner and the chamber wall, the passage being fluidly isolated from the chamber volume and having an inlet and an outlet adapted to circulate a heat transfer medium therethrough, as recited in claim 53.

Thus, claims 51 and 53 are patentable over *Pu* in view of *Masuda* and satisfy the requirements of 35 U.S.C. §103. Accordingly, the rejection should be withdrawn and the claims allowed.

G. 35 U.S.C. §103 - *Pu* in view of *Masuda* and further in view of *Reimold*

The Examiner's conclusions regarding the patentability of claim 18 over *Pu* in view of *Masuda* and further in view of *Reimold* are incorrect. In particular, there is no motivation to combine *Pu*, *Masuda* and *Reimold* in a manner that teaches or suggests all of the limitations recited in claim 18.

With respect to the Examiner's comments regarding the application of the *Reimold* reference, the Appellants point out that as a dependent claim of claim 11, claim 18 contains all of the limitations of claim 11 and adds additional limitations thereto. As such, Appellant's argument in the Appeal Brief properly points out that *Reimold* contains no teachings to modify any permissible combination of *Pu* and *Masuda* in a manner that yields the invention as recited in either claim 18 or claim 11, from which claim 18 depends.

With respect to the Examiner's comments regarding improper hindsight, the Appellants submit that the Examiner is impermissibly using more than "knowledge which was within the level of ordinary skill at the time the invention was made." (See, *In re McLaughlin*, 443 F.3d 1392, 170 USPQ 209 (CCPA 1971).) Specifically, as discussed above, there is no suggestion in the teachings of the references as a whole, or in the prior art, to combine the water jacket of

Masuda with the dielectric anode shield of *Pu* in a manner that yields the invention as claimed in any of Appellant's pending claims. As such, Appellants maintain that the Examiner is impermissibly picking and choosing components from the prior art without regard to the teachings of the references as a whole and combining them using the Appellant's claims as a guide to attain the limitations of the claimed invention.

As such, the Examiner fails to properly show that *Pu* in view of *Masuda* and further in view of *Reimold* teaches, shows or suggests all of the features required to sustain the Examiner's rejection of claim 18 under 35 U.S.C. §103. Therefore, claim 18 is patentable over *Pu* in view of *Masuda* and further in view of *Reimold*, and satisfies the requirements of 35 U.S.C. §103. Accordingly, the rejection should be withdrawn and the claim allowed.

H. 35 U.S.C. §103 - *Pu* in view of *Masuda* and further in view of *Collins I*

The Examiner's conclusions regarding the patentability of claims 19, 54 and 56-58 over *Pu* in view of *Masuda* and further in view of *Collins I* are incorrect. In particular, as discussed in the Appeal Brief, there is no motivation to combine *Pu*, *Masuda* and *Collins I* in a manner that teaches or suggests all of the limitations recited in claims 19, 54 and 56-58.

With respect to the Examiner's contention that it would have been obvious to modify the combined apparatus of *Pu* in view of *Masuda* to further comprise a magnet disposed in the inner wall of the chamber liner, the Appellants maintain that, as discussed above in section C, *Pu* and *Masuda* fail to teach or suggest forming an annular passage in the base of the chamber liner, as recited in claim 11. *Collins I* does not teach, suggest, or provide a motivation for forming an annular passage as recited in claim 11, from which the rejected claims depend. Nor does the Examiner assert that *Collins I* provides such a motivation. Moreover, the magnets of *Collins I* are provided in a passageway communicating with the chamber, and not in an inner liner as recited in claims 19, 54, and 56-58. As such, there is no motivation to modify the teachings of *Pu* and *Masuda* in a manner that yields the claimed invention.

Thus, the Examiner fails to properly show that *Pu* in view of *Masuda* and further in view of *Collins I* teaches, shows or suggests all of the features required to sustain the Examiner's rejection of claims 19, 54, and 56-58 under 35 U.S.C. §103. Therefore, claims 19, 54 and 56-58 are patentable over *Pu* in view of *Masuda* and further in view of *Collins I*, and satisfy the requirements of 35 U.S.C. §103. Accordingly, the rejection should be withdrawn and the claims allowed.

I. *Pu* in view of *Masuda* and further in view of *Shan* or *Collins II*

The Examiner asserts that Appellants improperly argue the *Pu*, *Masuda*, and *Shan* or *Collins II* references individually. The Appellants disagree. The Appeal Brief arguments containing discussions of the teachings of any particular reference is to be properly construed in the context of what motivation that reference, as a whole, provides in relation to the teachings of the remaining cited references.

With respect to the Examiner's comments regarding the use of *Shan* as a primary reference, the Appellants assert that *Shan* is redundant in view of *Pu*. *Pu* incorporates *Shan* by reference in order to more fully describe the dielectric anode shield depicted therein. Therefore, for at least the same reasons set forth above with respect to the Examiner's rejections having *Pu* as a primary reference, the pending claims are similarly patentable over *Shan* in view of the other cited art. Accordingly, the respective rejections should be withdrawn and the claims allowed.

J. 35 U.S.C. §103 - *Shan* in view of *Zhao*

The Examiner's conclusions regarding the patentability of claims 26 and 28 over *Shan* in view of *Zhao* are incorrect. In particular, as discussed in the Appeal Brief, there is no motivation to combine *Shan* and *Zhao* in a manner that teaches or suggests all of the limitations recited in claims 26 and 28.

With respect to the Examiner's comments stating that *Zhao* provides motivation to place nozzles on the aperture structure 44 in Figure 1 of *Shan*, the Appellants point out that element 44 referred to by the Examiner is a gas

distribution plate, or showerhead, mounted on the underside of the lid of *Shan*. (*Shan*, p. 4, ll. 22-25.) As such, even were one to place nozzles on the showerhead 44 of *Shan*, the combination would still fail to yield a liner having a second portion disposed proximate a lid of the chamber body and having a second portion wall extending downward along the wall of the chamber body to the outer wall of the first portion of the liner and a plurality of apertures formed in the second portion of the liner, a plenum at least partially defined between the lid and the second portion of the liner; and a nozzle disposed in at least one of apertures for flowing fluid from the plenum through the second portion of the liner, as recited in claim 26.

Therefore, the Examiner fails to properly show that *Shan* in view of *Zhao* teaches, shows, or suggests all of the features required to sustain the Examiner's rejection of claim 26 under 35 U.S.C. §103. Accordingly, the rejection should be withdrawn and the claim allowed.

K. 35 U.S.C. §103 - *Shan* in view of *Zhao* and further in view of *Takeuchi*

The Examiner's conclusions regarding the patentability of claim 27 over *Shan* in view of *Zhao* and further in view of *Takeuchi* are incorrect. Specifically, as discussed in the Appeal Brief, the combination of *Shan*, *Zhao* and *Takeuchi* does not teach, show or suggest all of them limitations of claim 26, from which claim 27 depends.

With regard to the Examiner's contention that the Appellants do not address the *Takeuchi* reference, the Appellants direct the Examiner's attention to the Appeal Brief, Section J, page 27, which addresses the rejection of claim 27 in light of *Shan* in view of *Zhao* and further in view of *Takeuchi*. Specifically, The Examiner cites *Takeuchi* to show that nozzles in a process chamber may be made of quartz. (See, e.g., *Examiner's Answer*, p. 15, ll. 16-22.) *Takeuchi* teaches a plasma processing system in which a gas inlet nozzle comprised of quartz extends through a chamber side wall. However, as discussed in the Appeal Brief and above, no permissible combination of *Shan* and *Zhao* results in the limitations recited in claim 26, from which claim 27 depends. *Takeuchi* fails

to provide any teaching or suggestion to bridge this gap. As such, any permissible combination of *Shan*, *Zhao*, and *Takeuchi* still fails to yield a liner having a second portion disposed proximate a lid of the chamber body and having a second portion wall extending downward along the wall of the chamber body to the outer wall of the first portion of the liner and a plurality of apertures formed in the second portion of the liner, a plenum at least partially defined between the lid and the second portion of the liner; and a nozzle disposed in at least one of apertures for flowing fluid from the plenum through the second portion of the liner, as recited in claim 26.

Thus, the Appellants maintain that the Examiner fails to properly show that *Shan* in view of *Zhao* and further in view of *Takeuchi* teaches, shows or suggests all of the features required to sustain the Examiner's rejection of claim 27 under 35 U.S.C. §103. Accordingly, the rejection should be withdrawn and the claim allowed.

CONCLUSION

For the reasons advanced above, Appellants respectfully urge that the rejection of Claims 11-24, 26-28, 37-38, 40, 42 and 47-58 as being unpatentable under 35 U.S.C. §103 is improper. Reversal of the rejections in this appeal is respectfully requested.

Respectfully submitted,

Jan 3, 2005



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APPENDIX I
PENDING CLAIMS

- 1-10. (Cancelled)
11. (Previously Presented) A semiconductor processing chamber comprising:
a chamber body having a wall, a bottom and a lid assembly defining a chamber volume;
a substrate support disposed within the chamber volume; and,
a chamber liner disposed in the chamber volume and having a base substantially covering the bottom of the chamber body, the base having a substantially annular passage formed therein and fluidly isolated from the chamber volume, the base having an inlet and outlet adapted to circulate a fluid through the passage.
12. (Original) The chamber of claim 11 wherein the chamber liner further comprises at least one of:
a first liner disposed proximate the lid assembly; or
a second liner disposed about the substrate support.
13. (Previously Presented) The chamber of claim 11 wherein the chamber liner is retained in the chamber by a clamp affixed to the chamber body.
14. (Original) The chamber of claim 11 wherein the chamber liner is comprised of a thermally conductive material.
15. (Original) The chamber of claim 11 wherein the chamber liner is comprised of a material selected from the group of aluminum, ceramic and stainless steel.

16. (Previously Presented) The apparatus of claim 12 wherein the second liner further comprises:

an inner wall connected to the base.

17. (Previously Presented) The apparatus of claim 11 wherein the chamber liner further comprises:

an outer wall connected to an outer edge of the base and extending upwards against the wall of the chamber body.

18. (Previously Presented) The apparatus of claim 11 wherein the chamber liner further comprises:

a first and second boss projecting from the base, the first boss comprising a hole in fluid communication with the passage at the inlet, and the second boss comprising a hole in fluid communication with the passage at the outlet.

19. (Original) The apparatus of claim 16 wherein inner wall further comprises a magnet disposed in the inner wall.

20. (Original) The apparatus of claim 17 wherein the outer wall further comprises a pumping port.

21. (Previously Presented) The apparatus of claim 11 wherein the chamber liner further comprises:

an inner wall connected to an inner edge of the base and extending upwards against the substrate support;

an outer wall connected to an outer edge of the base and extending upwards against the wall of the chamber body;

a center member having the passage disposed within;

a flange circumscribing the center member; and,

a cylindrical wall projecting from the center member inside of the flange.

22. (Previously Presented) The apparatus of claim 21 further comprising:
a lid disposed opposite the cylindrical wall, the lid and the wall defining a plenum at least partially therebetween.
23. (Previously Presented) The apparatus of claim 22 wherein the center member further comprises:
a plurality of nozzles disposed in the center member providing fluid access to the plenum.
24. (Original) The apparatus of claim 22 further comprising:
a gas feedthrough fluidly coupled to the plenum through a hole disposed in the lid.
25. (Cancelled)
26. (Previously Presented) Apparatus for lining a semiconductor processing chamber comprising:
a lid having an inlet;
a liner disposed proximate the lid, the liner having:
a first portion having a base substantially covering a bottom of a chamber body and an outer wall disposed proximate a wall of the chamber body;
a second portion disposed proximate a lid of the chamber body and having a second portion wall extending downward along the wall of the chamber body to the outer wall of the first portion of the liner; and
a plurality of apertures formed in the second portion of the liner;
a plenum at least partially defined between the lid and the second portion of the liner; and
a nozzle disposed in at least one of apertures for flowing fluid from the plenum through the second portion of the liner.

27. (Original) The apparatus of claim 26, wherein the nozzle is comprised of quartz, silicon carbide, silicon, aluminum nitride, aluminum oxide or combinations thereof.

28. (Original) The apparatus of claim 26, wherein the liner further comprises:
a channel having an inlet and an outlet disposed in the liner.

29.-36. (Cancelled)

37. (Previously Presented) The apparatus of claim 26, wherein a second side of the liner is textured.

38. (Previously Presented) Apparatus for lining a process volume defined by sidewalls of a semiconductor processing chamber comprising:

a liner adapted to be removably disposed in the process volume, the liner comprising:

an outer cylindrical wall configured to line the sidewalls of the chamber;

an inner cylindrical wall configured to line a substrate support disposed in the process volume of the chamber;

a bottom coupled between the outer cylindrical wall and the inner cylindrical wall; and

a passage at least partially formed in the liner and isolated from the process volume, the passage being adapted to flow a heat transfer medium therethrough.

39. (Cancelled)

40. (Previously Presented) The apparatus of claim 38, wherein the passage is formed at least partially in the cylindrical wall.

41. (Cancelled)

42. (Previously Presented) The apparatus of claim 38, wherein the passage is formed at least partially in the bottom.

43.-46. (Cancelled)

47. (Previously Presented) A semiconductor processing chamber comprising:
a chamber body having a wall, a bottom and a lid assembly defining a chamber volume;

a substrate support disposed within the chamber volume; and,

a chamber liner having at least a first portion having a base substantially covering the bottom of the chamber body and an outer wall disposed proximate the wall of the chamber body, the chamber liner having a passage fluidly isolated from the chamber volume at least partially formed in the chamber liner and adapted to circulate a heat transfer medium therethrough.

48. (Previously Presented) The chamber of claim 47, wherein the chamber liner further comprises:

a second portion disposed proximate the lid assembly and having a second portion wall extending downward along the wall of the chamber body to the outer wall of the first portion of the liner and a cover closing one end of the second portion wall.

49. (Previously Presented) The chamber of claim 48, wherein the cover of the second portion of the chamber liner further comprises:

a plurality of apertures formed therethrough.

50. (Previously Presented) The chamber of claim 49 further comprising a plate disposed on the chamber liner and forming a plenum therewith, the plenum in fluid communication with the chamber volume through the apertures.

51. (Previously Presented) A semiconductor processing chamber comprising:
a chamber body having a wall, a bottom and a lid assembly defining a chamber volume;

a substrate support disposed within the chamber volume; and,

a chamber liner disposed against a vertical portion of the substrate support, the chamber liner having a passage fluidly isolated from the chamber volume at least partially formed in the chamber liner.

52. (Previously Presented) Apparatus for lining a chamber volume of a semiconductor processing chamber, comprising:

a cylindrical wall having an upper end closed by a top member, the cylindrical wall adapted to line a portion of the chamber volume;

a plurality of apertures in the top member;

a passage formed in the top member and fluidly isolated from the chamber volume; and

a nozzle disposed in at least one of the apertures.

53. (Previously Presented) A semiconductor processing chamber comprising:

a wall, a bottom and a lid assembly defining a chamber volume;

a substrate support disposed within the chamber volume; and

a chamber liner circumscribing the substrate support and adapted to be removably disposed in the chamber volume, the liner comprising:

an outer cylindrical wall configured to line the wall of the chamber;

an inner cylindrical wall configured to line the substrate support;

a bottom connecting the outer cylindrical wall and the inner cylindrical wall;

and

a passage disposed between the liner and the chamber wall, the passage being fluidly isolated from the chamber volume and having an inlet and an outlet adapted to circulate a heat transfer medium therethrough.

54. (Previously Presented) The apparatus of claim 38, wherein the inner wall further comprises a magnet disposed in the inner wall.

55. (Previously Presented) The apparatus of claim 47, wherein the chamber liner further comprises an inner wall extending from the base inward of the outer wall.

56. (Previously Presented) The processing chamber of claim 55, wherein the inner wall further comprises a magnet disposed therein.

57. (Previously Presented) The processing chamber of claim 51, wherein the chamber liner further comprises a magnet disposed therein.

58. (Previously Presented) The processing chamber of claim 53, wherein the inner cylindrical wall further comprises a magnet disposed therein.